

REMARKS

Reconsideration of the present application is requested on the basis of the following particulars.

1. In the Specification

The objection to the abstract has been addressed by providing herewith a new abstract that conforms to U.S. practice. The specification has been amended by including proper section headings to dividing sections thereof. The specification has also been amended to comply with the objection to the drawings, as explained below. Acceptance of the amendment to the specification is respectfully requested.

2. In the Drawings

FIG. 1 has been amended to denote that it is figure number 1 of the present application. The written description of the specification has been amended accordingly to refer to this figure as FIG. 1. No new matter has been introduced. Acceptance of this amendment is respectfully requested.

3. In the Claims

Claim 1 has been amended to denote that it is the first claim of the present application. In addition, the reference numerals originally provided therein have been removed. Acceptance of this amendment is respectfully requested.

4. Rejection of Claim 1 under 35 U.S.C. 103(a) as being unpatentable over U.S. 4,864,109 (Minematsu et al.) in view of U.S. Patent 4,575,621 (Dreifus)

Claim 1 stands rejected as being unpatentable over Minematsu et al. in view of Dreifus. For the reasons put forth below, Applicants respectfully traverse this rejection by asserting that Minematsu et al. and Dreifus, whether considered

collectively or individually, are deficient in disclosing or suggesting the data carrier recited in claim 1 of the present invention.

a. Invention Summarized

The present invention recited in claim 1 is a data carrier that includes a carrier having an electronic circuit, a battery, a display and a solar cell. The solar cell is provided for detecting the usability of the display. The solar cell and the battery are electronically connected in series. The voltage of the battery is lower than the threshold voltage of the display.

b. References Distinguished

Minematsu et al. generally discloses a data carrier with a carrier, a display, an electronic circuit including at least one data memory, and a solar battery connected to a lithium battery. The lithium battery is described as backing up the contents of the data memory and the solar battery is described as serving as a main power source for the data carrier (col. 5, lines 18-23). It follows from the description that the lithium battery merely functions as a "back-up" for protecting the memory when the solar battery fails to provide power.

In the Office Action it was asserted that the lithium battery and the solar battery are connected in series. Applicants respectfully traverse this assertion on the basis that since the lithium battery is a back-up power source to the solar battery, the lithium and solar batteries must be connected in a parallel configuration. If the lithium and solar batteries were connected in series, as contended in the Office Action, the power source would be interrupted when the solar battery is not sufficiently illuminated, and consequently, the entire data in the memories would be lost. It will be noted that nowhere in Minematsu et al. is there is a disclosure or suggestion that specifies the electrical connection between the lithium and solar batteries. Accordingly, there is no finding as to the specific understanding or

principle in Minematsu et al. within the knowledge of the skilled artisan that would have provided the motivation to electrically connect a solar cell and battery in series.

Turning to the teachings of Dreifus, this reference was provided in the Office Action for disclosing a data carrier with means for detecting usability or probability of use of a display. Similar to Minematsu et al., Dreifus discloses a data carrier that includes a battery, photo cells and a display in which the battery functions as a back-up for securing data stored in a memory of the data carrier (col. 8, lines 43-49). The photo cells are noted as providing main power to the display of the data carrier (col. 8, lines 36-42).

In the Action, the interrupt control unit of the data carrier of Dreifus is referred to as evidence supporting a teaching that describes eliminating unnecessary power consumption and increasing the life of the battery. Further, it was asserted that modifying the data carrier of Minematsu et al. to include such an interrupt control unit would have been an obvious design variation. Applicants respectfully disagree with the interpretation of the interrupt control unit of Dreifus and submit that even if the data carrier of Minematsu et al. were to be modified to include the interrupt control unit of Dreifus, such a combination would not result in the present invention.

Specifically, the interrupt control unit of Dreifus is described as detecting attempts to delaminate or physically intrude into the data carrier while sensing inoperative or marginally operative conditions of the card (col. 9, lines 39-58). In the event that the data carrier is physically tampered or there is a loss of voltage, the interrupt control unit immediately wipes out the information stored in RAM (col. 15, lines 48-51). Accordingly, upon an indication of a certain criteria, the interrupt control unit of Dreifus erases data stored in the memory. On the other hand, the solar cell of the present invention is not arranged to erase the memory of the data carrier upon an indication of a certain criteria and it would not be obvious to modify the interrupt control unit of Dreifus to include such a solar cell of claim 1 of the present invention.

The present invention has the advantage over the cited references in that the solar cell changes its resistance in inverse proportion to brightness. At low brightness, the current flow between the battery and the display is interrupted. This enables a simple approach to avoiding the problem of inadvertent operation of the data carrier. Furthermore, by connecting the solar cell in series with a battery to reach a threshold voltage necessary for the display, the present invention has the advantage that the operation of the display does not require a potential transformer.

Accordingly, in view of the above-observations, Applicants submit that Minematsu et al. and Dreifus, whether considered collectively or independently, fail to disclose or suggest the data carrier recited in claim 1 of the present application. Accordingly, withdrawal of the rejection is respectfully requested.

5. Conclusion

In view of the amendments, and further in view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is respectfully requested that claim 1 be allowed and the application be passed to issue.

Application No.: 09/926,191
Examiner: Steven S. Paik
Art Unit: 2876

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicants' Attorney, the Examiner is invited to contact the undersigned at the numbers shown below.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Justin J. Cassell', written in a cursive style.

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